

**IN THE CLAIMS:**

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (original), or (not entered).

1.-8. (canceled)

9. (currently amended) A method of carrying out simulation of a circuit, comprising:  
inputting data comprising configurations for a plurality of partial circuits, and connectional relationships for input and output terminals of the partial circuits;  
extracting, from the circuit to be simulated, the plurality of partial circuits to inspect for equivalent operational characteristics;  
inspecting the plurality of partial circuits to detect partial circuits exhibiting equivalent operational characteristics, based on the configurations of the plurality of partial circuits, and judging equivalence when the configurations of said plurality of partial circuits are mutually consistent; and  
compressing the circuit by reducing~~integrating~~ the partial circuits exhibiting equivalent operational characteristics into one partial circuit and simulating the compressed circuit.

10. (original) The method of claim 9, wherein said inspecting the plurality of partial circuits is based on the connectional relationships of at least one of the corresponding input terminals and output terminals of the plurality of partial circuits.

11. (original) The method of claim 9, wherein said inspecting the plurality of partial circuits is based on the operational characteristics of corresponding component elements of the plurality of partial circuits.

12. (original) The method of claim 9, wherein the circuit to be simulated is a MOS circuit comprising a plurality of MOS semiconductor devices.

13. (canceled)

14. (original) The method of claim 9, further comprising judging non-equivalence when the configurations of the plurality of partial circuits are mutually inconsistent.

15. (previously presented) The method of claim 9, further comprising assessing the intensity of influence of an external terminal of the circuit by tracing paths linking the external terminal and one or more terminals of the plurality of partial circuits.

16. (original) The method of claim 15, wherein said inspecting the plurality of partial circuits is based on the intensity of the influence of the external terminal.

17. (original) The method of claim 15, wherein the circuit to be simulated is a MOS circuit comprising a plurality of MOS semiconductor devices.

18. (original) The method of claim 9, wherein said assessing the intensity of influence of an external terminal is determined as the frequency of shifting from the source or drain of a MOS semiconductor device to the gate thereof while tracing a path linking the external terminal and a given terminal of each of the plurality of partial circuits.

19. (original) The method of claim 9, wherein when the connectional relationships of at least one of the corresponding input terminals and output terminals of the plurality of partial circuits are judged to be mutually inconsistent, a plurality of other partial circuits connected to at least one of the corresponding input terminals and output terminals are inspected for quasi-equivalent circuits, and when the plurality of other partial circuits are judged as quasi-equivalent circuits, the plurality of partial circuits are regarded as exhibiting equivalent operational characteristics.

20. (original) The method of claim 9, wherein when the plurality of partial circuits are inspected for equivalence, a unique element having no counterpart within the circuit to be simulated is detected, and if a terminal that has not been judged to be a unique terminal having no counterpart is included in the terminals connected to the unique element, the terminal is newly judged to be a unique terminal, and the plurality of partial circuits connected to the newly judged unique terminal are inspected for equivalence.

21. (previously presented) A system for carrying out simulation of a circuit, comprising:

a data input unit inputting data comprising configurations for a plurality of partial circuits, and connectional relationships for input and output terminals of the partial circuits;

a circuit extracting unit extracting, from the circuit to be simulated, the plurality of partial circuits to inspect for equivalent operational characteristics;

a storage unit holding data concerning configurations of the plurality of partial circuits; and

a circuit equivalence inspecting unit detecting partial circuits exhibiting equivalent operational characteristics by inspecting the plurality of partial circuits on the basis of the configurations of the plurality of partial circuits, and having a judging unit judging equivalence when the configurations of said plurality of partial circuits are mutually consistent,

wherein the circuit to be simulated is compressed by reducingintegrating the partial circuits exhibiting equivalent operational characteristics into one partial circuit and circuit simulation is performed on the compressed circuit.

22. (original) The system of claim 21, wherein said storage unit holds data concerning the connectional relationships of at least one of the corresponding input terminals and output terminals of the plurality of partial circuits, and said circuit-equivalence inspecting unit detects partial circuits on the basis of the connectional relationships of at least one of the corresponding input terminals and output terminals of the plurality of partial circuits.

23. (original) The system of claim 21, wherein said storage unit holds data concerning the operational characteristics of corresponding component elements of the plurality of partial circuits, and said circuit-equivalence inspecting unit detects partial circuits on the basis of the operational characteristics of corresponding component elements of the plurality of partial circuits.

24. (original) The system of claim 21, wherein the circuit to be simulated is a MOS circuit comprising a plurality of MOS semiconductor devices.

25. (canceled)

26. (original) The system of claim 21, wherein said circuit-equivalence inspecting unit further comprises a judging unit judging non-equivalence when the configurations of the plurality of partial circuits are mutually inconsistent.

27. (previously presented) The system of claim 21, further comprising an assessing unit assessing the intensity of influence of an external terminal of the circuit by tracing paths linking the external terminal and one or more terminals of the plurality of partial circuits.

28. (original) The system of claim 27, wherein said circuit-equivalence inspecting unit detects partial circuits on the basis of the intensity of the influence of the external terminal.

29. (original) The system of claim 27, wherein the circuit to be simulated is a MOS circuit comprising a plurality of MOS semiconductor devices.

30. (previously presented) The system claim 29, wherein the intensity of influence of said external terminal is determined as the frequency of shifting from the source or drain of a MOS semiconductor device to the gate thereof while tracing a path linking the external terminal and a given terminal of each of the plurality of partial circuits.

31. (original) The system of claim 21, further comprising a connected-circuit quasi-equivalence inspecting unit inspecting, when said circuit-equivalence inspecting unit judges that the connectional relationship of at least one of the corresponding input terminals and output terminals of the plurality of partial circuits are mutually inconsistent, a plurality of other partial circuits connected to at least one of the corresponding input terminals and output terminals for quasi-equivalent circuits, wherein when said connected-circuit quasi-equivalence inspecting unit judges that the plurality of other partial circuits are quasi-equivalent circuits, the plurality of partial circuits are regarded as exhibiting equivalent operational characteristics.

32. (original) The system of claim 21, wherein when the plurality of partial circuits are inspect for equivalence, said circuit-equivalence inspecting unit detects a unique element having no counterpart within the circuit to be simulated, and if a terminal that has not been judged to be a unique terminal having no counterpart is included in the terminals connected to the unique element, the terminal is newly judged to be a unique terminal, and the plurality of partial circuits connected to the newly judged unique terminal are inspected for equivalence.

33. (currently amended) An apparatus for carrying out simulation of a circuit, comprising:

a data input circuit inputting data comprising configurations for a plurality of partial circuits, and connectional relationships for input and output terminals of the partial circuits;

a circuit extracting circuit extracting, from the circuit to be simulated, the plurality of partial circuits to inspect for equivalent operational characteristics;

a storage circuit holding data concerning configurations of the plurality of partial circuits; and

a circuit-equivalent inspecting circuit detecting partial circuits exhibiting equivalent operational characteristics by inspecting the plurality of partial circuits on the basis of the configurations of the plurality of partial circuits, and having a judging circuit judging equivalence when the configurations of said plurality of partial circuits are mutually consistent,

wherein the circuit to be simulated is compressed by reducingintegrating the partial circuits exhibiting equivalent operational characteristics into one partial circuit and circuit simulation is performed on the compressed circuit.

34. (original) The apparatus of claim 33, wherein said storage unit holds data concerning the connectional relationships of at least one of the corresponding input terminals and output terminals of the plurality of partial circuits, and said circuit-equivalence inspecting unit detects partial circuits on the basis of the connectional relationships of at least one of the corresponding input terminals and output terminals of the plurality of partial circuits.

35. (original) The apparatus of claim 33, wherein said storage unit holds data concerning the operational characteristics of corresponding component elements of the plurality of partial circuits, and said circuit-equivalence inspecting unit detects partial circuits on the basis of the operational characteristics of corresponding component elements of the plurality of partial circuits.

36. (original) The apparatus of claim 33, wherein the circuit to be simulated is a MOS circuit comprising a plurality of MOS semiconductor devices.

37. (canceled)

38. (original) The apparatus of claim 33, wherein said circuit-equivalence inspecting unit further comprises a judging unit judging non-equivalence when the configurations of the plurality of partial circuits are mutually inconsistent.

39. (previously presented) The apparatus of claim 33, further comprising an assessing unit assessing the intensity of influence of an external terminal of the circuit by tracing paths linking the external terminal and one or more terminals of the plurality of partial circuits.

40. (original) The apparatus of claim 39, wherein said circuit-equivalence inspecting unit detects partial circuits on the basis of the intensity of the influence of the external terminal.

41. (original) The apparatus of claim 39, wherein the circuit to be simulated is a MOS circuit comprising a plurality of MOS semiconductor devices.

42. (original) The apparatus of claim 41, wherein the intensity of influence of said external terminal is determined as the frequency of shifting from the source or drain of a MOS semiconductor device to the gate thereof while tracing a path linking the external terminal and a given terminal of each of the plurality of partial circuits.

43. (original) The apparatus of claim 33, further comprising a connected-circuit quasi-equivalence inspecting unit inspecting, when said circuit-equivalence inspecting unit judges that the connectional relationship of at least one of the corresponding input terminals and output terminals of the plurality of partial circuits are mutually inconsistent, a plurality of other partial circuits connected to at least one of the corresponding input terminals and output terminals for quasi-equivalent circuits,

wherein when said connected-circuit quasi-equivalence inspecting unit judges that the plurality of other partial circuits are quasi-equivalent circuits, the plurality of partial circuits are regarded as exhibiting equivalent operational characteristics.

44. (original) The apparatus of claim 33, wherein when the plurality of partial circuits are inspect for equivalence, said circuit-equivalence inspecting unit detects a unique element having no counterpart within the circuit to be simulated, and if a terminal that has not been judged to be a unique terminal having no counterpart is included in the terminals connected to

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the unique element, the terminal is newly judged to be a unique terminal, and the plurality of partial circuits connected to the newly judged unique terminal are inspected for equivalence.

45. (canceled)